SITE TECHNICAL BULLETIN

DATE: March 16, 1992 **NUMBER:** STB-FSAS-029

SYSTEM/TYPE: FSS

SUBJECT: PREPARATION OF EXCHANGE AND REPLACE BOARDS

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1. PURPOSE. This site technical bulletin (STB) is distributed to flight service data processing subsystem (FSDPS) FA-10017, automated flight service station (AFSS) FA-10018, and aviation weather processor (AWP) FA-10020, sites to indicate which circuit cards have removable components that are not to be included in exchange and replace (E & R) shipments. This document also indicates components that are different between flight service automation system (FSAS) model 1 (M1) and model 1 full-capacity (M1FC) hardware.

2. DISTRIBUTION. FSDPS, AWP, and AFSS distribution list.

3. REFERENCES.

a. Order 6490.15B, Maintenance of Flight Service Automation System Model 1 Full Capacity Equipment

b. TI 6490.1, Model 1 Flight Service Automation System, Instruction Book

c. TI 6490.36, Model 1 Full Capacity Flight Service Automation System, Instruction Book

d. Order 6000.15B, General Maintenance Handbook for Airway Facilities

4. DESCRIPTION OF PROBLEM. Configurable components are to be excluded from E & R shipments between the FAA Logistics Center and field sites. Incidents have occurred that these components are missing due to their being sent to the FAA Logistics Center. Also, certain components vary between model 1 and model 1 full-capacity FSAS assemblies.

5. SITE APPLICATION. All FSDPS, AWP, and AFSS sites, model 1 and model 1 full-capacity.

6. CONTENTS.

ITEM	DESCRIPTION	QUANTITY
Attachment	Preparation of E & R Boards	1

DISTRIBUTION: Selected Airway Facilities Field and Regional Offices **INITIATED BY:** ASM-450

7. ACTION. This document should be retained on all FSAS sites and referenced whenever circuit board replacement is required for model 1 or model 1 full-capacity equipment.

8. HARDWARE IMPACT. Not applicable.

9. CLARIFICATION OR COMMENTS. For further information or comments, please contact the National Automation Engineering Field Support Division, ASM-400, on FTS 482-HELP or commercial (609) 484-HELP.

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Attachment

ATTACHMENT

PREPARATION OF EXCHANGE AND REPLACE BOARDS

Certain items are to be excluded from the E & R shipments between the FAA Logistics Center and M1 or M1FC field sites. Use this document to locate which items are to be removed prior to E & R shipments.

The figures on the following pages indicate configurable component locations for these assemblies:

Figure	Description, Manufacturer
1	On-The-Fly (OTF) Processor, E-Systems
2	Quad Cache Memory, E-Systems
3	Multiplexer (MUX), E-Systems
4	32k Word PROM, Digital Equipment Corporation (DEC)
5	System Maintenance Processor (SMP) Circuit Board, Tandem
6	Memory Control Board (MCB), Tandem
7	Storage Control Unit (SCU) Channel Interface, Tandem
8	512k Word Memory Module, Tandem
9	AFSS Disk Cartridge, Digital Equipment

NOTE: Most of the components being removed are read-only memory (ROM) or programmable ROM (PROM) integrated circuits and should be handled and stored in accordance with established procedures for handling electrostatic sensitive integrated circuit components. Failure to follow electrostatic handling procedures may result in components being electrically or physically damaged. Failure to remove the components outlined in this procedure could result in the assembly being rendered unusable until the missing component is acquired.

E-Systems part numbers consist of the following; XXX-XXXX-YYY where XXX-XXXX (or XXX-XXXXX) is the basic part number and the '-YYY' is a revision number, starting from '-001'. If the item has not been revised since the initial issue, the '-YYY' portion will not be present.

Only components list with '' should be removed prior to E & R shipments. Additional useful information is located inside the door panels of each E-Systems cabinet.**

1. ON-THE-FLY (OTF) PROCESSOR

E-Systems 401-33676-01, NSN 7035-01-278-7775

Listed below are the configurable PROM chips on this card.

Location	Model 1	Model 1FC	Remarks
U24	316-3031	316-3031-001	
U25	316-3032	316-3032-001	
U26	316-3033	316-3033	
U27	316-3035	316-3035	
U28	316-3036	316-3036	
U29	316-3037	316-3037	
U30	316-3018	316-3018-001	
U31	316-3019	316-3019	
U32	316-3020	316-3020	
U33	316-3021	316-3021	
U54	316-3022	316-3022	
U58**	316-3011	316-2586	(M1/M1FC firmware)
U60**	316-3012	316-3012	(OTF address #1)
U60**	316-3013	316-3013	(OTF address #2)
U65	316-3023	316-3023	
U66	316-3025	316-3025-001	
U67	316-3024	316-3024-001	
U68	316-3034	316-3034	
U69	316-3029	316-3029	
U70	316-3028	316-3028-001	
U71	316-3030	316-3030-002	
U72	316-3027	31613027	
U73	316-3026	316-3026-001	

Legend to symbols used

'**' denotes component to be removed prior to E & R shipments.
BOLD numbers indicate a difference between M1 and M1FC.

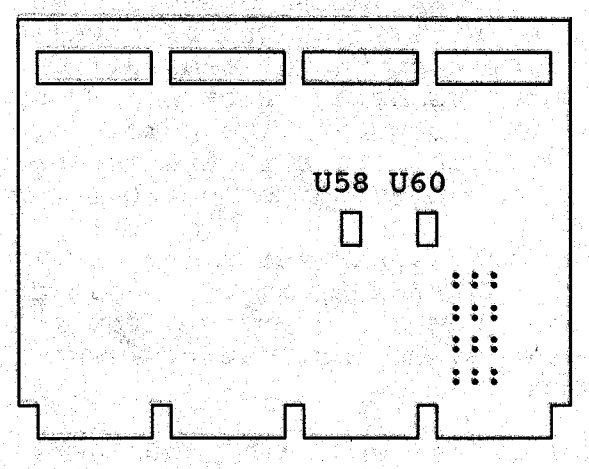

FIGURE 1. OTF PROCESSOR

2. QUAD CACHE MEMORY

E-Systems 401-33692-01, NSN 7035-01-278-7776

Listed below are the configurable PROM chips on this card.

Location	Model 1	Model 1FC	Remarks
U5**	316-3040	316-3040	(Cache address #1)
U5**	316-3041	316-3041	(Cache address #2)
U6	316-3038	316-3038	
U7	316-3038	316-3038	
u12	316-3038	316-3038	
U18	316-3038	316-3038	
U30	316-3018	316-3018-001	
U36	316-3009	316-3009	
u37	316-3010	316-3010	
U63	31'6-3039	316-3039	
u71	316-3007	316-3007-001	
U75	316-3003	316-3003-001	
U76	316-3005	316-3005-001	
u77	316-3006	316-3006	
U78	316-3004	316-3004	
u79	316-3002	316-3002-001	
U80	316-m	316-3001-001	
U88	316-3008	316-3008-001	

Lesend to svmbols used

'**' denotes component to be removed prior to E & R shipments.

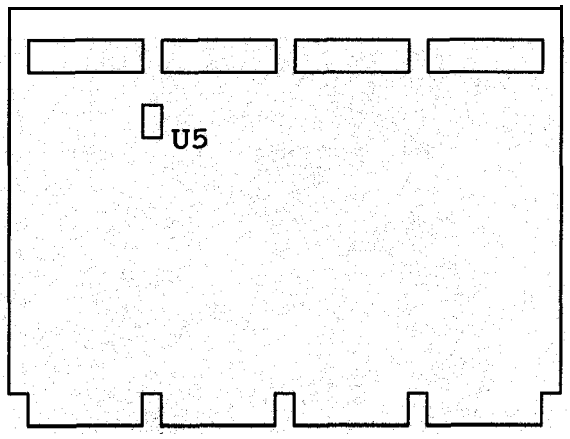

FIGURE 2. QUAD CACHE MEMORY

3. **MULTIPLEXER**
E-Systems 401-36993-03, NSN 7035-m-278-7774

Listed below are the' **configurable** components on this card.

Location	Model **1**	**Model 1FC**	**Remarks**
U36**	**316-3009**	**316-10245**	**(Mux**firmware)
U37**	**316-3010**	**316-10246**	**(Mux firmware)**
U93**	**401-37124-01**	**401-37124-01**	(Mux **#1** address)
U93**	401-37124-02	**401-37124-02**	**(Mux#2**address).
U97**	**401-37125-01**	**401-37125-01**	[I/O Priority **#4)**
J u m p e r s **E2,** E3			**(CP1,** CP2, or CP3)

Legend to symbols used
''** denotes component to be removed prior to **E & R** shipments.
BOLD numbers indicate a **difference** between **M1FC** and Ml.'

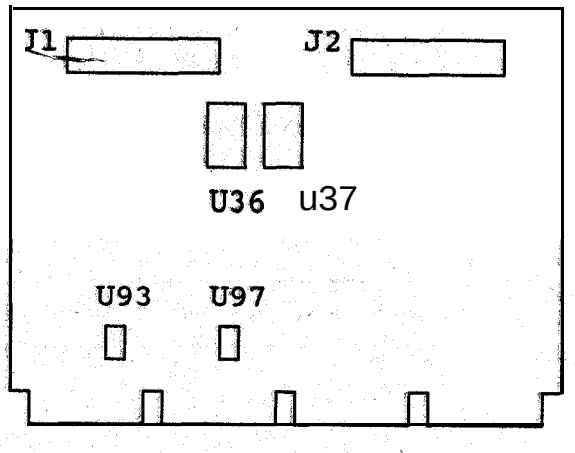

FIGURE 3. MULTIPLEXER

4. 32-K WORD PROM CARD

DEC MRV11-C, NSN 5998-01-139-4788

Listed below are all the configurable PROM chips for this card. All of the socketed PROM chips should be removed prior to E & R shipment.

Model 1 PROM Part Numbers	PROM Set No.	Subsystem
316-3044 through 316-3055	401-37747-01**	Comms Proc.
316-3060 through 316-3067	401-37747-02**	Position Proc.
316-3200 through 316-3209	401-37747-03**	MADTS

M1FC PROM Part Numbers	PROM Set No.	Subsystem
316-3232 through 316-3245	401-39150-01**	Comms Proc.
316-3248 through 316-3253	401-39150-02**	Position Proc.
316-3216 through 316-3227	401-39150-03**	MADTS

In the figure below, the "U" number refers to the physical socket name on the MRV11-C card.

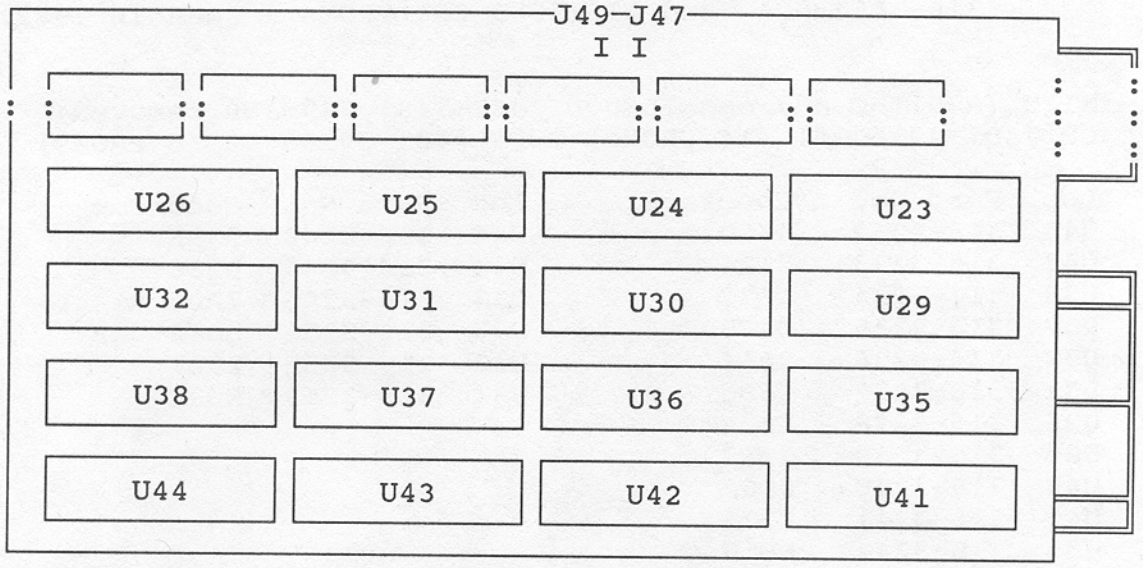

FIGURE 4. 32K WORD PROM

4. 32-K WORD PROM CARD (continued)

Below is a detailed breakdown of specific PROM locations' for the MRV11-C card used in both the communications processor (CP) and position processor (PP) in both M1 and M1FC.

Model 1 (MRV11-C address 160000, J47-J48, J49-J50 installed)
CP #401-37747-01 (12 PROMs) PP #401-37747-02 (8 PROMs)

Loc.	Part No.	Checksum	Loc.	Part No.	checksum
U44	316-3044	0E4-7	U44	316-3060	E980
U43	316-3045	0E48	U43	316-3061	523A
U38	316-3046	EB73	U38	316-3062	A93A
U37	316-3047	B29A	U37	316-3063	D21B
U32	316-3048	F57B	U32	316-3064	FC30
U31	316-3049	7ABB	U31	316-3065	E9DA
U26	316-3050-001	FF8D*	U26	316-3066	796F
U25	316-3051-001	3115*	U25	316-3067	EE64
U42	316-3052	5283'			
U41	316-3053	A84F			
U36	316-3054-001	6564*			
U35	316-3055-001	047C*			

NOTE: Checksums are for revised 316-3050-001, 316-3051-001, 316-3054-001, and 316-3055-001 PROMs issued in 1988,

M1FC (MRV11-C address 760000, J47-J48, J49-J50 removed)
CP #401-39150-01 (14 PROMs) PP #401-39150-02 (6 PROMs)

Loc.	Part No.	Checksum	Loc.	Part No.	Checksum
U44	316-3232	3610	U44	316-3248	9393
U43	316-3233	2114	U43	316-3249	0180
U38	316-3234	C63C	U.38	316-3250	7A06
U37	316-3235	D7F0	U37	316-3251	I3642
U32	316-3236	26A4	U32	316-3252	20B7
U31	316-3237	D6B6	U31	316-3253	ED3E
U26	3X6-3238	E82A			
U25	316-3239	21F8			
U42	316-3240	QD0F			
U41	316-3241	F272			
U36	314-3242	BD19			
U35	316-3243	77ED			
U30	316-3244	48EF			
U29	316-3245	72EF			

5. SYSTEM MAINTENANCE PROCESSOR (SMP)
Tandem 42540, NSN 5998-01-332-3813

The SMP is the main circuit board assembly of the Tandem operations and service processor (OSP). Two configurable components (PROMs) at locations U-2F** and U-3F** should be removed prior to E & R shipments.

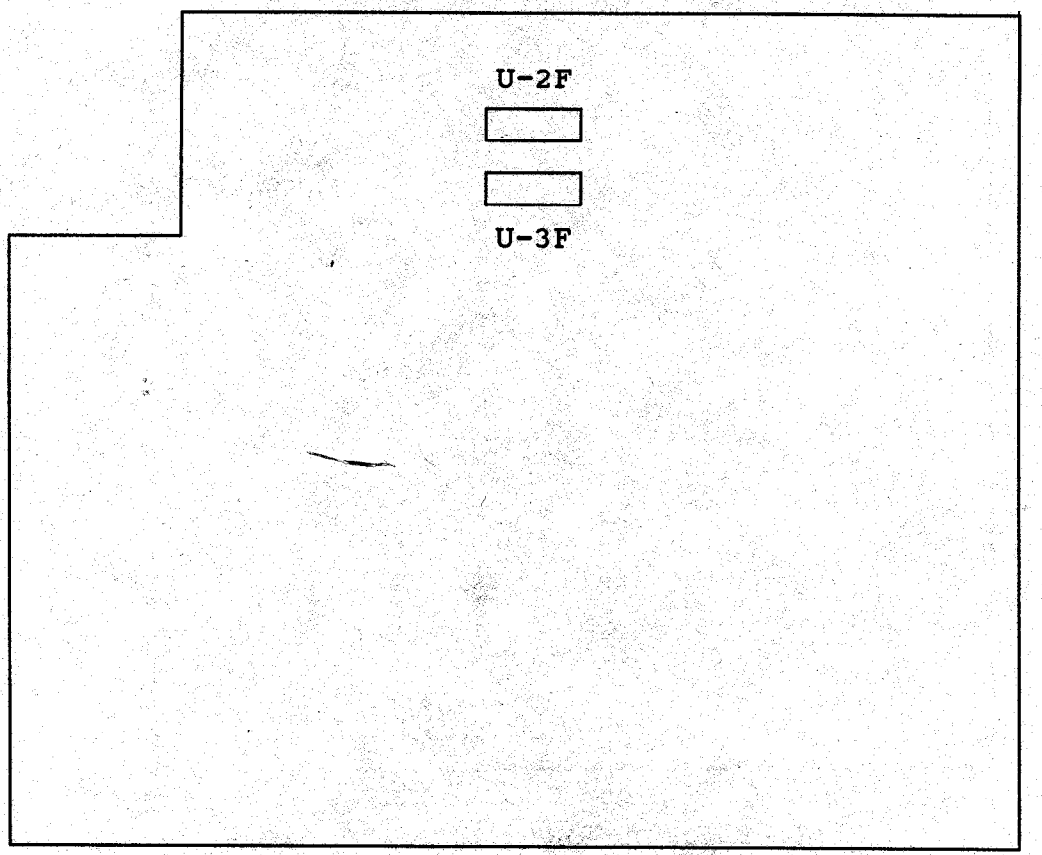

FIGURE 5. SMP CIRCUIT BOARD

6. MEMORY CONTROL BOARD (MCB)
Tandem 54770, NSN 5998-01-187-5177

The MCB is an integral part of the Tandem central processing unit (CPU). The configuration component at location U-23K should be removed prior to E & R shipments.

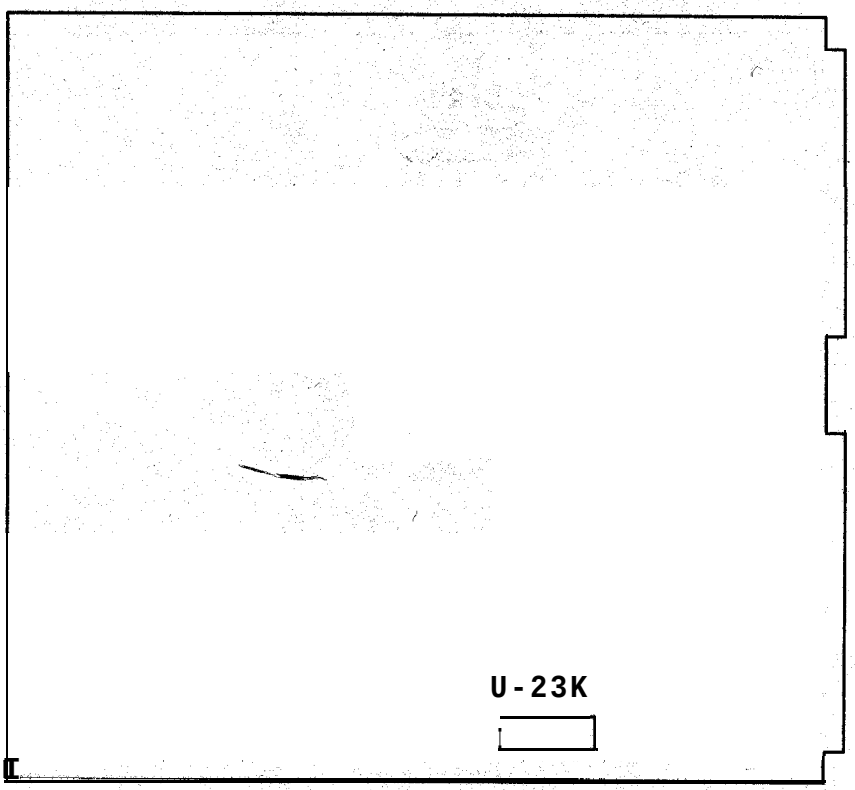

FIGURE 6. MEMORY CONTROL BOARD

7. SCU CHANNEL INTERFACE

Tandem 55900, NSN 5998-01-183-7026

This card is one of two cards that comprise the 3106 disk controller assembly. The SCU channel interface card has a "unit literal PROM" at location U-18M which should be removed prior to E & R shipments.

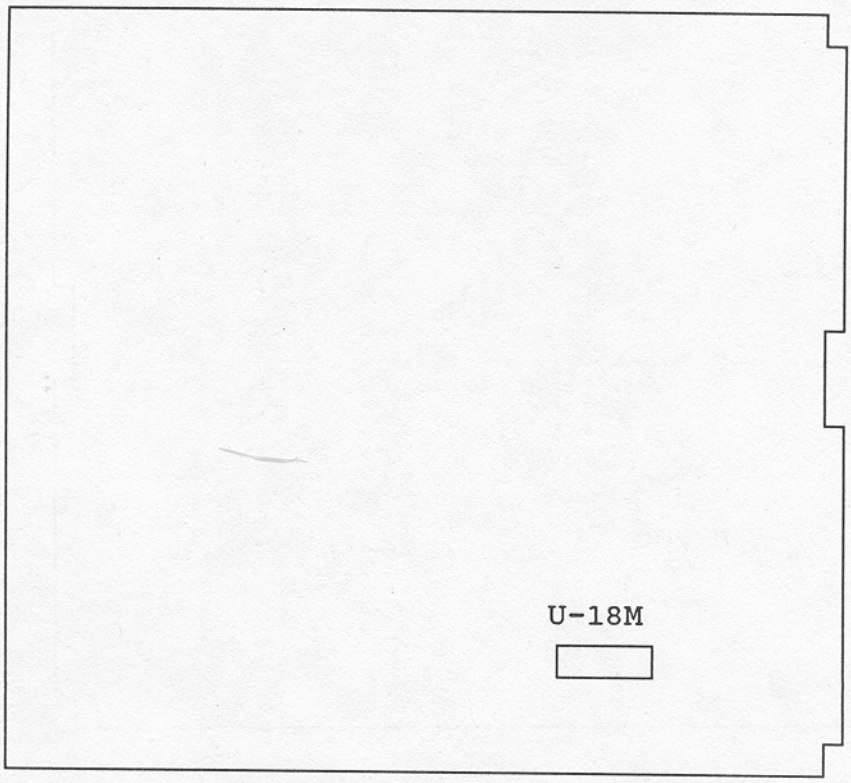

FIGURE 7. SCU CHANNEL INTERFACE

8. 512K WORD MEMORY MODULE

Tandem 57600, NSN 5998-01-156-8003

The 512K word memory module is part of the Tandem CPU assembly and has a configuration chip located at U-20C which should be removed prior to E & R shipments.

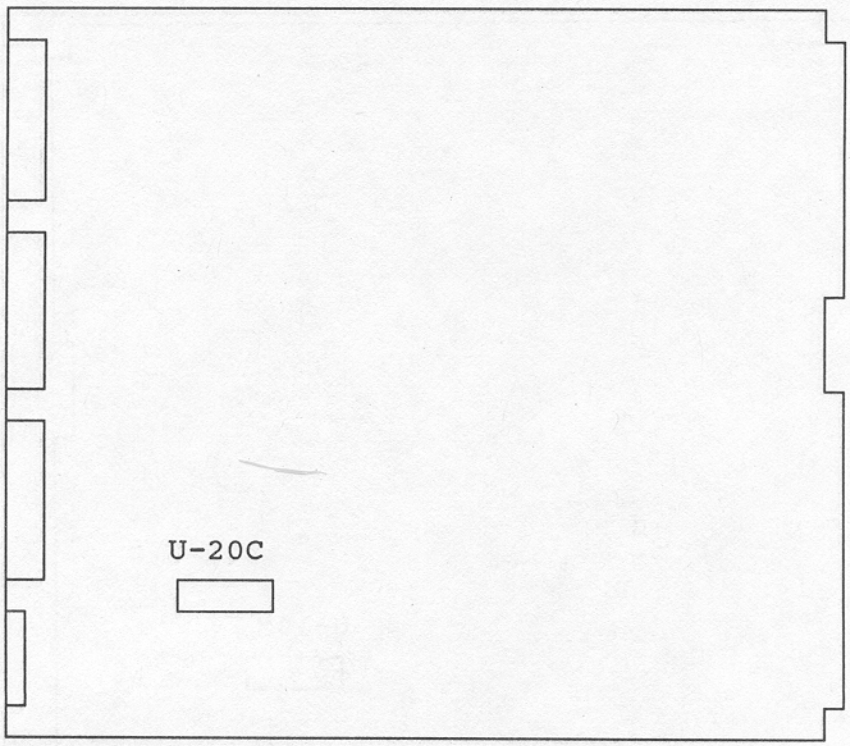

FIGURE 8. 512K WORD MEMORY MODULE

9. AFSS Disk Cartridge

a. Disk cartridges for RL01 and RL02 disk drives should not be returned inside of disk drives shipped for E & R. Below are several important facts about these disk cartridges,

(1) RL01 or RL02 disk cartridges are not compatible with each other. (i.e., RL01 cartridges will not work in RL02 drives and RL02 cartridges will not work in RL01 drives.)

(2) Disk cartridges shipped from the FAA Logistics Center must be prepared using the procedure below whether a new or used cartridge.

(3) Each site is responsible for obtaining prepared disk cartridges for their system.

(4) Disk cartridges can only be prepared using an E-Systems maintenance and diagnostic test set (MADTS) system, which has been placed at all FSDPS and AWP sites.

(5) Disk cartridges prepared for Model 1 are not compatible with M1FC sites and the procedure below is not the same as that used for Model 1 AFSS disk cartridge preparation.

A method for preparing M1FC disk cartridges on a MADTS system using two disk drives is explained below.

M1FC RL01 OR RL02 DISK PREPARATION PROCEDURE

Requirements: (a) Disk cartridge to be prepared, (b) Second disk drive with cable and address plug numbered '1', (c) MADTS with M1FC operating system.

b. Obtain the appropriate disk cartridge for the type of drive in use at the site. Part numbers are shown below for convenience.

Type	Manufacturer	NSN
RL01	#RLOlK-DC	7045-01-072-5891
RL02	#RL02K-DC	7025-01-217-8766

c. On a functional M1FC MADTS system, connect a second disk drive by daisy-chain arrangement and install the address/ready plug with the number '1'. Be aware that either disk drive may be model RL01 or RL02, as there are no changes necessary to the RLV12 disk controller card or the operating system to identify the drive type.

d. Power on the MADTS system and load the M1FC MADTS operating system disk, E-Systems part number 419-00806, in drive '0'. Install the disk to be prepared in drive '1'.

e. At the input/output terminal (IOT), a RUM startup program runs for approximately 100 seconds followed by a disk boot which loads the MADTS software via the RT-11 operating system, The following is a time-sensitive procedure that must be followed exactly a8 indicated prior to preparing disk cartridges for use.

(1) After approximately 100 seconds, a disk boot is initiated from drive zero (DLO:). Wait for the following to appear:

[COMMAND MODE]

: D RL.

RL : B.

RT-11FV (S) V04.00M

(2) Immediately as "RT-11FV" appears, hold down the 'CTRL' key and type 'C' several times until '^C' appears on the IOT. It is best to start typing this after the "D RL." appears so that as the 'RT-11FV' line completes, the normal program will beaborted.

(3) The program should stop execution and a prompt of '.' (period) should be the last thing printed. If the program is allowed to continue, th8 normal MADTS system will be executed and disk preparation will not be possible. If this happens, toggle the switch at the front of the MADTS briefly to the 'BOOT' position and return to the beginning of this step.

f. At the '.' (period)prompt, enter the following command:

@PEINIT

g. A program will execute that will prepare the disk cartridge in about 3 to 4 minutes. If the program completes without errors, continue with paragraph h below. Upon any indication of an error or problem, another disk cartridge should be installed in drive '1' and repeat paragraph f.

h. Once the *disk* cartridge has bean formatted and the operating system installed, a label should be attached to the disk cartridge in the flat surfacearea in front of the handle:

On RL01 disk cartridge: #419-00800 M1FC AFSS

On RL02 disk cartridge: #419-00801 M1FC AFSS

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